

MICHIGAN'S WILDLIFE ACTION PLAN
AQUATIC SYSTEMS: LAKE MICHIGAN BASIN

- Work with local officials on setback and buffer ordinances (riparian modification)

EDUCATION & AWARENESS

- Educate landowners of the importance of shoreline vegetation (riparian modification)

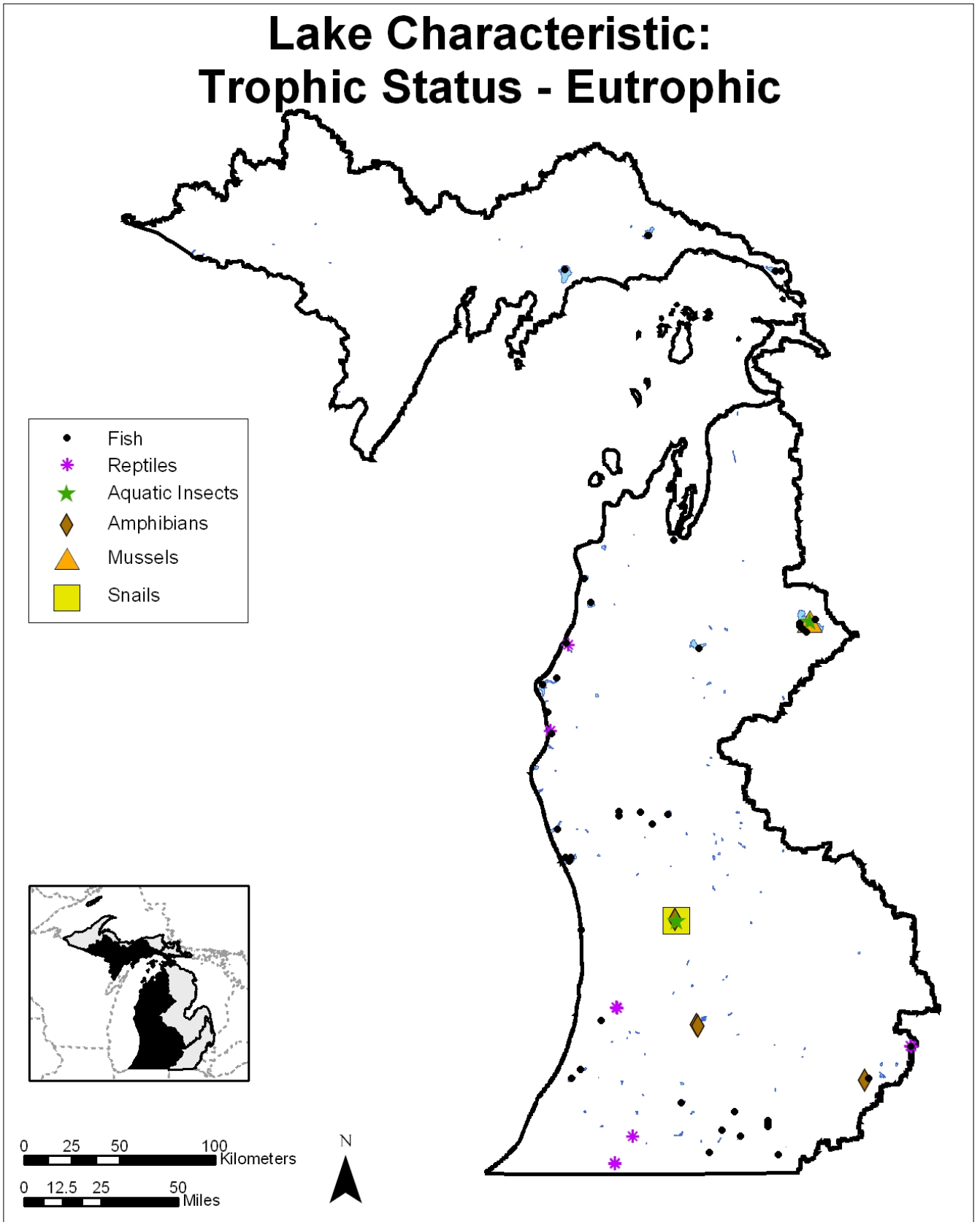
Research and Survey Needs

- Determine effective prevention, control, and survey techniques for aquatic invasive species
- Determine other species that use wave-washed shores
- Determine the amount of hard shoreline modification
- Establish effective methods of communication with the public and their stewardship role
- Determine effects of jet skis on spawning and migrating aquatic species

Monitoring

- Aquatic invasive species
- Beach sanding
- Effectiveness of local ordinances
- Jet ski use
- Land use changes
- Nearshore dredging
- Riparian modification
- Shoreline modification (dredging, shoreline structures, etc.)
- Use of best management practices

Lake Characteristic: Trophic Status - Eutrophic



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Description

Eutrophic lakes have high concentrations of nutrients (total phosphorus >25 µg/L) resulting in generally high biomass of algae. They also generally have lower water clarity and potentially low oxygen concentrations in the hypolimnion. They are more likely to have low winter oxygen concentrations under the ice depending on lake depth and basin shape.

General Condition of Feature

This habitat is considered 30% in good to excellent condition, 20% in fair condition, and 50% in degraded to very degraded condition.

Associated Species of Greatest Conservation Need

MUSSELS

Specific associations with this landscape feature were not found in the literature

SNAILS

spindle lymnaea (*Acella haldemani*)

INSECTS

Specific associations with this landscape feature were not found in the literature

FISH

spotted gar (*Lepisosteus oculatus*)
brown bullhead (*Ameiurus nebulosus*)

AMPHIBIANS

Specific associations with this landscape feature were not found in the literature

REPTILES

Blanding's turtle (*Emydoidea blandingii*)

Associated Threats

MODIFICATION OF NATURAL PROCESSES

- Climate change: (low threat)

POLLUTION

- Altered nutrient inflows: Excess nutrients; Excess eutrophication due to agricultural development of these watersheds with naturally rich soils
- Altered sediment loads: Sedimentation (low threat)
- Pesticides and herbicides: Herbicide treatments; "Weed" treatment
- Urban, municipal, and industrial pollution: Industrial effluent; Municipal effluent; Pollution speeds up eutrophication

HABITAT CONVERSION

- Dams: (low threat)
- Riparian modification: Shoreline development (low threat)
- Wetland modification

BIOLOGICAL INTERACTIONS

- Invasive plants and animals: Invasive aquatic vegetation (Eurasian Water Milfoil)
- Other biological interactions: Minor (?) trophic status changes in U.P. lakes (low threat)

CONSUMPTIVE BIOLOGICAL RESOURCE USE

- Removal of wildlife: (low threat)

NON-CONSUMPTIVE BIOLOGICAL RESOURCE USE

- Macrophyte removal: Vegetation management (mechanical removal, herbicide use); "Weed" treatment

EDUCATION

- Lack of scientific knowledge: (low threat)
- Social attitudes: (low threat)

Conservation Actions Needed (Threats addressed)

LAND, WATER & SPECIES MANAGEMENT

- Control and prevent establishments of aquatic invasive species (invasive plants and animals)
- Control zebra mussels (invasive plants and animals)
- Protect and rehabilitate wetland functions (variety of threats)
- Require vegetation management to occur in conjunction with a watershed management plan (macrophyte removal)

LAW & POLICY

- Encourage agricultural conservation practices (variety of threats)
- Encourage townships to separate combined sewer systems (altered nutrient inflows)
- Include wetland protections in zoning and planning ordinances (wetland modification)
- Incorporate best management practices (variety of threats)
- Reduce effluent flow (urban & municipal)
- Reduce pesticide and herbicide use (pesticides and herbicides)